



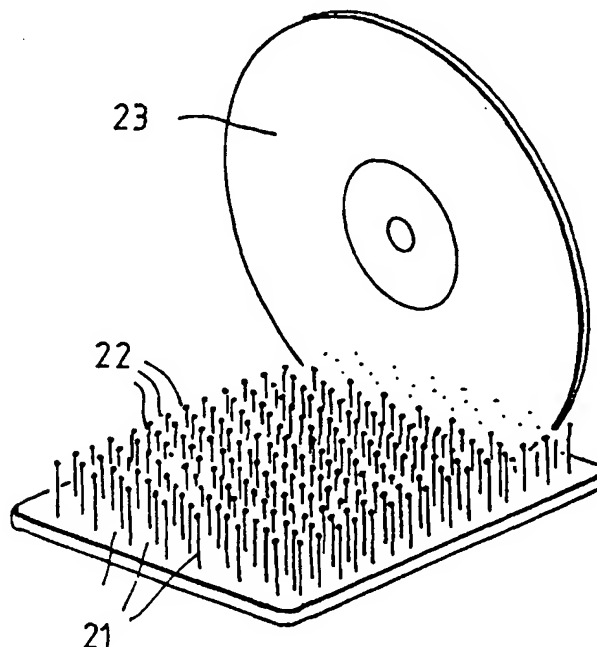
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(54) Title: A DEVICE FOR RETAINING ARTICLES

(57) Abstract

A device (20) for retaining articles (23) including a support surface having a holding means which may be finger like projections and at least one holding zone defined by a space between adjacent holding means and whereby the adjacent holding means are adapted to hold an article in the holding zone.



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A DEVICE FOR RETAINING ARTICLESFIELD OF THE INVENTION

The present invention relates to devices used for retaining different types of articles and products.

5 The present invention is particularly applicable to compact discs and other articles such as items of stationery such as rulers, pens and other items which are normally stored in an office environment but which are frequently being used.

10 The present invention also relates to audio and video compact discs or other software storage devices such as a computer CD ROM's, DVD's, Zip discs, floppy discs etc.

For convenience the present invention will be described in detail with reference to compact discs.

15 BACKGROUND OF THE INVENTION

A typical compact disc is used for storing computer software and music. Compact discs are typically stored in plastic cases or boxes. Such storage devices are normally themselves stored in either a drawer or a compact disc storage device such as a CD tower. The problem with the above arrangement is that each compact disc must be effectively stored twice. Firstly the compact disc must be stored in its case and secondly the case must then be stored away. Thus known storage devices and methods generally consists of an arrangement of small demarcated compartments in which the compact discs are stored within their cases. There are also other known storage devices which house only the compact discs without their corresponding cases. These later devices generally house the compact disc in thin sleeves of plastic sheeting material which are often fixed into a book like arrangements so that the individual sleeves form the pages of the book.

During normal use people who use compact discs may find that they need to shuffle between a multitude of discs at any one time.

For example computer users often need to access

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several different CD ROM discs throughout the course of their day. These discs are often left unprotected out of their cases where they are very likely to become damaged as a result of being scratched by other objects.

5 A further problem is that because of their physical characteristics, compact discs have a tendency to rest on either of their two flat surfaces and as a result when left out of their protective cases they can be easily damaged. This can occur when one of the two flat surfaces
10 comes into direct contact with a work surface such as a desk top. Alternatively the upward facing surface may easily be damaged when other objects are placed upon it.

The present invention is aimed at providing a storage device which at least alleviates some of the
15 aforementioned problems.

SUMMARY OF THE INVENTION

According to the present invention there is provided a device for retaining articles including a support surface having a holding means and at least one
20 holding zone defined by a space between adjacent holding means and wherein the device is able to be placed in a plurality of orientations in which the adjacent holding means are adapted to hold at least one article in the holding zone.

25 Preferably the holding means comprise holding portions which extend from the support surface.

Preferably each holding means comprises at least one holding member.

It is preferred that the holding means is adapted
30 to immobilise articles in a plurality of orientations.

Preferably the holding means is adapted to hold at least one article in an orientation in which gravity applies a force to remove the article from the holding zone.

35 According to one embodiment the holding means is adapted to hold at least one article above a ground surface.

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According to another embodiment the holding portions are adapted to extend horizontally.

It is preferable that the holding members are adapted to hold an article whereby it is immobilised
5 against the force of gravity or to a predetermined level against other forces acting on the device in use.

According to another embodiment the device may be adapted to be connected to the underside of a surface, whereby the holding members extend downwardly from the
10 supporting surface.

It is also possible for the device to be connected to an irregular shaped surface whereby some holding members extend at different angles to other holding members.

15 According to another embodiment a plurality of holding members are arranged in predetermined geometrical groups or configurations or unordered configurations.

The holding means is preferably adapted to hold a plurality of articles.

20 Desirably the holding means is adapted to immobilise articles in the holding zone.

The device may comprise a plurality of holding members aligned in a plurality of rows.

25 One holding zone may be defined by a space occurring between adjacent rows of holding members. The holding members preferably include holding portions whereby an article is able to be held between holding portions of adjacent holding members.

30 Each holding member may have at least one holding portion.

Preferably each holding member has a plurality of holding portions.

Each holding portion may be resiliently deformable.

35 It is preferred that each holding portion comprises a peripheral side wall portion of one holding member.

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Each holding member preferably comprises a projection upstanding from the support surface.

The support surface may comprise a base.

5 The support surface preferably comprises a generally planar base.

The support surface may be resiliently deformable.

10 According to another aspect of the present invention there is provided a device for holding articles comprising a support surface having a holding means thereon, the holding means having holding parts defining a holding zone adapted to receive an article whereby the article can be held by adjacent holding parts of the holding means.

15 Each holding member may comprise a resiliently flexible projection extending from the base.

Preferably each holding member extends at substantially 90° upwardly from the base depending on its orientation.

20 Each holding portion preferably comprises at least one fin extending from a side wall of the holding member with which it is associated.

Preferably each holding portion comprises a web extending laterally from its holding member.

25 Each fin may extend from a top end of its holding member to a bottom end thereof.

Each fin may increase in lateral width from the top end to the bottom end.

30 Preferably the device comprises four fins equispaced around the periphery of each holding member.

Each holding member may comprise a cylindrical projection.

The support surface may comprise a lattice portion comprising rows and columns of holes.

35 It is preferred that a row of holes is aligned with a holding zone.

The rows and columns of holes may be included in

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rows and columns of base portions.

Each holding member may be located over one of the rows or columns of the base portions.

Each holding member may be located at a junction
5 between rows and columns of the base portions.

Preferably holding members are arranged at respective junctions in rows and columns.

It is preferred that holding portions of the holding members extend laterally across part of an adjacent
10 hole.

Flexing of one holding member preferably results in one fin of the holding member moving downwardly whereby its lower end is able to enter an adjacent hole.

It is preferred that each holding portion extends
15 over a respective one of the holes.

Preferably at least some of the fins are curved downwardly.

According to one embodiment the fins have a convex outer surface.

20 According to another embodiment the holding members comprise parallel rows of ribs.

It is preferred that the fins comprise gripping means for gripping an article between adjacent fins.

Preferably the gripping means includes a
25 peripheral portion of the fin.

The gripping means may be configured to enhance gripping for example by having articulated edge portions.

Alternatively the gripping means may be finger-like projections such as barbs or other retaining means
30 which extend inwardly from an outer surface of the fin.

According to an alternative embodiment the finger-like projections extend outwardly.

According to another embodiment each holding portion comprises gripping means for gripping an article
35 placed between at least two opposing holding members.

The gripping means may be a plurality of filaments.

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Each filament may have barbs or other retaining portions located along their surfaces.

The fins may be made of a flexible material such as plastics and rubber.

5 Preferably the holding means includes a non-scratching means, which according to one embodiment may be a coating of a non-scratching compound.

It is preferred that the non-scratching means provides sufficient frictional force to ensure an article
10 is held by the holding means in normal use.

The base may have an adhesive backing according to one embodiment.

The base portion preferably comprises thin strips of resilient material.

15 The holding portions may be in the form of thin strips of resilient material.

According to another embodiment the holding portions may be resiliently flexible.

According to an alternative embodiment the
20 holding means includes holding members, a base and support comprising a plurality of apertures adapted to have respective holding members extend therethrough, when placed on the base support.

It is preferred that the holding means comprises
25 a base sleeve having a plurality of collar portions each located around a respective aperture and having holding portions for holding an article between adjacent holding portions.

The holding portions preferably include fins
30 located around the periphery.

Each holding member may have a cross section which is a geometrical shape such as round, square or triangular.

Each holding member may be in the form of a
35 projection.

Each projection may have a hollow interior.
It is preferred that the lower end of each

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projection has a hollow interior.

The lower end may comprise a plurality of webs which connect the projection to the support surface.

Each projection may comprise fins joined together
5 by linking means.

Preferably each holding means comprises an upwardly extending wall.

According to one embodiment the walls consist of walls of a slot or groove.
10

The slot may be the holding zone.

According to one embodiment the holding means comprises rubber finger like columns.

The support surface may be generally curved with a holding region including the holding means.

The support surface may have a generally convex
15 shape.

The support surface preferably includes slots of different length.

It is preferred that the holding members reduce
20 in cross-sectional width from bottom to top.

The holding members may be angled towards an adjacent holding member in an opposite row of holding members defining an opposite side of the holding zone.

According to one embodiment the device comprises
25 a random pattern of holding members.

According to an alternative embodiment the holding means comprises soft deformable plastic material which is adapted to be deformed to create a holding zone.

The holding members may be of different lengths.
30 The holding members preferably comprise semi-circular walls.

The walls preferably are closer together at a bottom end thereof.

According to another embodiment the walls
35 increase in thickness from the top to the bottom end.

The device may be flexible so as to be affixable to the surface of another object.

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The object may be curved or may be a fixed structure or irregular in shape.

According to another embodiment of the present invention the holding members comprise projections having
5 bulbous portions at top ends thereof.

At least some of the projections are provided with intermediate gripping means for gripping an article placed between adjacent projections.

At least some of the holding members may be
10 irregular in shape.

According to a preferred embodiment each projection has a generally cylindrical cross section.

According to another embodiment at least some of the projections are upwardly extending members which
15 gradually diverge from an opposite adjacent holding member.

According to another embodiment each holding member comprises a plurality of peripheral webs.

Each web may have varying widths along the length of the holding member.

It is preferred that each of the holding members comprises a plurality of webs facing webs of another holding member on an opposite side of the holding zone.

Preferably the support surface comprises a generally planar body.

The support surface may be in the form of a base having a bottom surface and an upper surface from which the holding members extend.

The support surface may be a flexible body.

The supporting surface may be an article.

30 BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 shows a top angled view of a storage device for CD's in accordance with a first embodiment of
35 the present invention;

Figure 2 shows a top view of the storage device

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shown in Figure 1;

Figure 3 shows a side view of the storage device shown in Figure 1;

Figure 4 shows a cross sectional side view of the storage device shown in Figure 1;

Figure 5 shows an angled side view of a storage device according to a second embodiment of the present invention;

Figure 6 shows the storage device according to the second embodiment incorporating a CD;

Figure 7 shows an expanded side view of the storage device shown in Figure 6;

Figure 8 shows a top view of the storage device shown in Figure 6;

Figure 9 shows a top view of the storage device according to the second embodiment when storing a CD in accordance with a second option;

Figure 10 shows an angled front view of a storage device according to a third embodiment of the present invention;

Figure 11 shows the storage device according to the third embodiment when storing multiple articles;

Figure 12 shows a side view of the surface of the storage device according to the third embodiment;

Figure 13 shows a side view of a storage device according to a fourth embodiment of the present invention;

Figure 14 shows a side view of a storage device according to a fifth embodiment of the present invention;

Figure 15 shows a side view of a storage device according to a sixth embodiment of the present invention;

Figure 16 shows a side view of a storage device according to a seventh embodiment of the present invention;

Figure 17 shows the storage device shown in Figure 16 storing an article;

Figure 18a shows a side view of a storage device according to a seventh embodiment of the present invention;

Figure 18b shows a front view of the storage

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device shown in Figure 18a;

Figure 18c shows a top angled view of a storage device according to an eighth embodiment of the present invention;

5 Figure 18d shows a side view of the storage device shown in Figure 18c;

Figure 19 shows a side view of a storage device according to a ninth embodiment of the present invention;

10 Figure 20 shows an angled side view of a storage device according to a tenth embodiment of the present invention;

Figure 21 shows an angled top view of a storage device according to an eleventh embodiment of the present invention;

15 Figure 22 shows a conceptualised side view of the storage device shown in Figure 21 when in a partially open position;

Figure 23 shows the storage device shown in Figure 21 when in an almost closed position;

20 Figure 24 shows a side view of a storage device according to a twelfth embodiment of the present invention;

Figure 25 shows the storage device shown in Figure 24 with a CD stored therein;

25 Figure 26 shows a side view of a storage device according to a thirteenth embodiment of the present invention;

Figure 27 shows the storage device shown in Figure 26 when adhered to an angled surface;

30 Figure 28 shows a side view of the storage device shown in Figure 27;

Figure 29 shows a side view of a storage device according to a fourteenth embodiment of the present invention;

35 Figure 30 shows a side view of a storage device according to a fifteenth embodiment of the present invention; and

Figures 31 to 39 show side views of alternative

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types of storage devices according to the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

5 According to the first embodiment of the present invention the storage device 10 is specifically designed to hold compact discs. The storage device 10 in this embodiment thus consists of a generally planar base 11 having an array of upstanding finger like spigots 12.

10 As shown in Figures 1 to 4 the spigots 12 are effectively cylindrical columns having four lateral fins 13 equispaced around the periphery of the spigot 12.

The fins 13 curve outwardly and downwardly from the top part of each spigot and terminate at a bottom part of the spigot with an end wall section which is effectively
15 perpendicular to the peripheral surface of the spigot 12.

According to this embodiment the fins 13 may commence near the top of the spigot 12 as shown by fin 14 or alternatively may begin further down the spigot 12 as shown with fin 15.

20 The spigots 12 are arranged in an array of rows and columns 16, 17. Between the lattice of rows and columns 16, 17 circular holes 18 are provided. The holes 18 have a larger diameter than the diameter of the spigots 12 and have a radius which is slightly larger than the
25 radial width of the bottom of each of the fins 13.

Because of the arrangement of columns and rows of spigots, the fins 13 extend over a respective one of the holes 18. Because a hole 18 is surrounded by four spigots 12, as shown in Figure 2, four fins 19 extend over each of
30 the holes 18.

Each of the fins 19 terminate before the centre of each hole 18 and together form a cross configuration over each hole 18.

35 As shown in Figure 4 the bottom of each of the fins 13, 19 are substantially flush with the level of the bottom of each spigot 12.

The holes 18 preferably have the advantage of

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providing increased flexibility for the fins 13, 19, because their lower surfaces are disconnected from the base 11.

Thus it is preferred that the bottom surface of the fins is able to move freely with respect to the adjacent lower surface if this is the base 11.

It is possible that the bottom surface of the fins do not face the base surface. For example the spigots could be angled whereby the bottom of the fins face the bottom of opposing fins.

Alternatively the fins may be of shorter length so that their lowermost surface/edge is well above the base 11.

It should be noted that in this embodiment the rows and columns 16, 17 are characterised by a central portion of the base 11 having a lattice structure with the spigots located at the centre of intersecting rows and columns of the lattice structure.

To protect the fins 12 the lattice structure of the base 11 may be slightly recessed with respect to the rest of the base so that the bottom of each of the fins 13 are located below the perimeter of the base 11.

It is preferred that each of the spigots 12 are flexible along with the fins 13.

Each of the rows and columns of spigots 12 define what is in effect a holding zone between adjacent rows and columns of spigots 12. The distance between adjacent spigots must be sufficient to hold a compact disc without the compact disc dropping out of this holding zone.

In its preferred form the base 11 is able to be connected or adhered to any surface in any configuration and a CD is able to be held in the holding zone without dropping out of the holding zone even if the base is oriented so that the spigots 12 are downwardly directed or horizontally directed.

In this respect the fins 13 act to help retain a compact disc within the holding zone.

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When a CD is pressed between rows or columns of spigots 12, adjacent spigots effectively move apart but the resilience of the spigots 12 provides a frictional engagement with opposite surfaces of the compact disc. Alternatively the spigots could be inflexible or rigid. The fins provide the majority of gripping to retain the compact disc within the holding zone.

According to one embodiment the spigots are configured or made of sufficient rigidity to counteract any moment or rotational forces which are applied to the spigots to withdraw an article which is held between opposing spigots when the device is used in a typical application.

In one example the device may be used in a car. When the car moves forces will be applied to any article held by the device. Such forces will include rotational forces. In such a situation there are benefits in providing spigots of the preferred embodiment with sufficient rigidity to counteract moments of force or rotational forces.

In another example if the device is placed on a vertical surface and a CD is placed on the device in a diagonal orientation, rotational forces will be applied to spigots holding the CD. In such a situation it is preferable that the spigots are rigid to counteract these rotational forces.

According to another embodiment the spigots may have a corkscrew configuration.

The fins may be more pliable and resilient than the columns of the spigots 12 and may have a wafer like thickness which adds to the frictional engagement with opposing planar surfaces of the compact disc which is located in the holding zone.

The length, shape, geometry and material of each of the fins 13 can be varied to increase or decrease the amount of frictional engagement and therefore gripping which is applied to a compact disc or any other article

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which is to be located between rows and columns of the spigots 12.

Preferably the device is made from a single material such as Santoprene (trade name).

5 Furthermore the size, shape and geometry, resilience and flexibility of the spigots 12 may be varied in order to suit different types of articles and in order to vary the tightness with which an article is held in respective holding zones.

10 The spacing between adjacent rows and columns of spigots 12 may also be varied so that some of the rows/columns may be adapted to receive one particular article and other rows and columns are able to receive and store a different type of article.

15 Additional variations include providing different shaped spigots for some rows/columns, again so that different types of articles can be held in different regions of the holding device.

20 Although the preferred embodiment discloses spigots having four fins it is equally possible to have a multiplicity of fins located around the periphery of each spigot. The fins may also be replaced by equivalent gripping or retaining portions which extend from the surface of each spigot in order to assist with retaining an
25 article such as a CD within a holding zone between adjacent spigots.

In addition the spigots may be replaced by protrusions or other extensions of different geometrical configurations depending upon the type of article which is
30 to be retained by the holding device.

According to one embodiment each spigot could have peripheral extensions in the form of filaments to provide a cross-sectional appearance of a snow flake.

35 According to another embodiment each spigot could have peripheral extensions in the form of petals of a flower. For example the device could have the appearance of a water lily flower with CD's being insertable between

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the petals of the water lily.

According to another embodiment the spigots may have rib-like protrusions which extend horizontally and upwardly.

5 It is preferred that the bottom of the base 11 is provided with a means for fixing or adhering the holding device 10 to another surface. Such a fixing means may include a peel off adhesive strip, a magnetic strip or
10 holes which are adapted to receive fixing devices such as screws.

It is also possible to adapt existing structures such as computer hardware so that they have areas which are specifically adapted to receive the base of the holding device 10.

15 Other embodiments of the invention will now be described with reference to the remaining figures.

Figures 5 to 9 show a holding device 20 which has matchstick like spigots 21 each with a rounded head 22 at a top end thereof.

20 As shown in Figure 7 a compact disc 23 is able to be pushed between rows of adjacent spigots 21 and their integrally formed heads 22.

25 The spigots 21 spread apart as the compact disc 23 is pushed lower and therefore deeper into the holding zone 24 located between adjacent spigots 21 and therefore affords the person using the holding device the ability to have the compact disc held more tightly in the holding zone.

30 Figure 6 shows how the compact disc 23 is able to sit in the holding device 20 and Figures 8 and 9 show two different ways in which the compact disc 23 can be held by the spigots 21.

35 It is noted that there is in effect a random arrangement of spigots 21 for the holding device 20. However because the spigots 21 are reasonably close together and are also very flexible and resilient, the compact disc 23 can be held at any angle and accordingly a

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holding zone 24 can be effectively created by pressing the CD 23 into spaces between adjacent spigots 21.

Thus different holding devices are contemplated which have spigots extending from a surface of any orientation. For example the spigots may extend outwardly and horizontally from a vertical surface or outwardly and downwardly from an overhanging surface. The holding device may be of any particular shape as long as it includes spigots on its external surface or internal surface in a manner which allow an article to be held between spigots.

It can be seen from the above that the holding device serves to defy gravity by holding a CD from the side of a computer monitor or any other electrical device or piece of furniture. For example the holding device may be adhered to the underside of a desk or may be integrally formed in the form of a mat which can be slotted into a receiving zone of another surface.

Figures 10 and 11 show a holding device 25 in which the base 26 is formed in a cylindrical shape and the spigots 27 are arranged around the periphery of the so created cylinder 26.

Although the embodiment of Figures 10 and 11 shows spigots similar to those shown in Figures 5 to 9, the shape of the spigots may be varied in accordance with any of the embodiments described herein.

As shown in Figure 11 the holding device 25 may be adapted to hold compact discs 28 and a cassette tape 29. Equally the storage device 25 could also be adapted to hold floppy discs or other storage devices as well as items of stationery such as rulers and pens.

In each of the above examples it should be noted that the type of spigots may need to be changed to suit the particular article which is to be stored. Accordingly regions of the storage device 25 may have patterns of different types of spigots.

Figure 12 shows a further embodiment of the present invention in which the spigots 31 are more rigid

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and the heads 32 provide gripping to hold an article between adjacent rows of spigots 31.

As shown in Figure 13 a storage device 33 may be provided with spigots 34 having knee sections 35 which are flexible. Each of the spigots 34 may have heads are reasonably large and have specially contoured external surfaces to increase the surface area for frictional engagement with a compact disc 37 located therebetween. The knee sections 35 may be complimented by flexible joints 38 by which each spigot 34 is connected to base 39 of the storage device 33.

As shown in Figure 14 a storage device 40 may be formed with spigots 41 which are reasonably rigid. A coating 42 of flexible material is formed over each of the spigots 41 and this coating 42 provides frictional engagement with an article 43 in order to retain it between adjacent rows/columns of spigots 41.

The coating could be replaced by a gel or equivalent.

Figure 15 shows an alternative embodiment of the invention in which storage device 44 has spigots 45, which are effectively columnless fin structures 46.

Each spigot 46 may comprise two, three or more fins which terminate at their upper end in a point 47.

In Figures 16 and 17 a storage device 48 is shown having spigots 49 with a series of rounded lateral balls or bulbous regions of flexible material. A CD 51 is adapted to be inserted between adjacent spigots 49 and frictional engagement occurs by way of the bulbous regions 50.

According to a variation on the storage device 48 each of the bulbous regions may be able to act independently of another and will be compressed by the inserted CD 51. The different bulbous portions 50 could also be made of materials of different compressibility so that the regions closest to the base would be least compressible and the regions closest to the upper end of the spigots 49 would be most compressible.

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This arrangement would allow the user to control the degree of firmness by which an inserted object was held. For example, by inserting the CD 51 only a small distance into the device only the most compressible regions
5 would be compressed and the subsequently lateral opposing forces on the CD 51 would be relatively small when compared to an object that was inserted a larger distance into the device, thereby causing compression of the less compressible regions and the subsequently laterally
10 opposing forces on the inserted object would be relatively large.

Figures 18a and 18b show a storage device 52 having rows of thin walls 53, instead of spigots. The height and length of each wall 53 varies, with the tallest
15 and longest ones being located in the centre of the storage device 52.

The angle or orientation of each wall 53 could also vary from one part of the storage device 52 to another.

20 Figures 18c and 18d show a variation on the storage device 52, in which storage device 54 is in the form of a part hemispherical base structure with a series of grooves 55 and associated walls 56, acting as the holding zones and spigots. Each of the walls 56 are made
25 of a flexible material and may have additional surface structures in order to enhance the ability of the storage device 54 to hold and support an article within each of the grooves 55.

According to another embodiment of the present
30 invention a storage device 57 is provided as shown in Figures 19 and 20.

The storage device 57 consists of a base 58 having spigots 59 and cover spigots 60 which fit over the end of the spigots 59 and are constructed of a relatively
35 more deformable and/or flexible material. The less deformable spigots 59 could be partially or wholly covered by the more deformable region of spigots 60.

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When a relatively thin object 61 is inserted into the storage device 57 it is able to be held sufficiently by the more deformable region 60.

However when a relatively heavier and/or thicker
5 object is inserted such a compact disc case, it is able to be pushed into the less deformable region with spigots 59 so that the more deformable region 60 will deform to whatever shape is necessary to allow the object to sit
10 firmly between opposing protruding members of the relatively less deformable region.

Figure 20 shows a variation on Figure 11 in which the storage device 25 has a rotatable base 63.

Figure 21 shows a storage device 64 which could be any of the storage devices described herein but which is
15 incorporated in a CD case 65. In this embodiment the base 66 of the storage device 64 could be very thin and contain an adhesive coating on its bottom surface to allow it to stick to the inner face of the CD case 65.

In this embodiment spigots 67 of the storage
20 device 64 could be designed to be collapsible. This allows the case 65 to close. Figures 22 and 23 illustrate how spigots 66 would be able to collapse as the CD casing 65 closes.

Figures 24 and 25 illustrate storage device 67
25 with spigots 68 which are made from a deformable material that once deformed would maintain their new shape and not return to the previous shape unaided. This would allow the spigots 68 to effectively pinch an article inserted therebetween once the flexible material 69 coated over the
30 spigots 68 had pulled them inwards and created a laterally opposing force on the article 70. Thus the layer of flexible material has tensile forces which in turn causes the spigots 68 to bend inwardly and grasp an inserted object.

35 Figures 26 to 28 show another embodiment of the invention in which a storage device 71 is made from a thick layer of soft pliable material 72 with a series of parallel

- 20 -

slots 73 which are adapted to receive a thin object such as a CD 74. According to a variation on this concept the storage device 71 could be made of a flexible material having such flexibility as to allow slots to be created as
5 desired by simply pressing an object into the upper surface of the storage device 71.

According to another embodiment of the present invention the holding device consists of an array of sliding or depressible columns which may be made from a
10 material such as a sponge like material.

In such an embodiment the objective is to simulate the concept of providing a holding zone between adjacent holding portions. Thus if a CD pushes down on a series of adjacent sliding columns, as the columns slide
15 down under the pressure applied by the CD, other columns remain unmoved and the sides of these unmoved columns provide a frictional engagement with the planar surfaces of the CD. As long as the frictional forces provided by these unmoved columns is sufficient to overcome the resilient
20 upward force applied by the depressed sliding columns the CD will be held firmly between columns on either side of the depressed columns.

According to the above embodiment the holding device can be in the form of a large sponge-like material
25 which has an array of vertical cuts placed in it from its top surface. This array of cuts forms the columns which are individually able to be depressed but are resilient so as to move up again once the force of depression has been removed.

30 If the sliding columns are sufficiently small in effect they act like numerous spigots which are extremely close to each other, as they are only separated by the vertical cut which exists between them.

According to another variation of this concept
35 each sliding or depressible column can be provided with side surfaces which have filaments, webbing or other structures which assist in providing a frictional

- 21 -

engagement of the surface of an article with which they abut.

The grid of columns described above may be of a regular geometrical shape or an irregular shape. Thus the
5 columns may have a rectangular cross-section or may have a circular or curved cross-section.

According to another embodiment the array of cuts may be serpentine or wave-like in appearance. The slidable/depressible columns may have different shapes.

10 As shown in Figures 27 and 28 the storage device 71 may be adapted to be connected to angled surfaces 75.

Figure 29 shows a storage device 76 consisting of rounded column shaped spigots 77 and a mat of flexible material 78 which is formed with an array of holes which
15 enable the mat to be placed over the spigots 77. Each of the holes of the mat 78 are provided with upwardly extending bosses which act as sleeve sections for the spigots 77 and are made of a soft pliable material which is adapted to provide a frictional engagement with an object
20 inserted between rows of spigots 77.

The shape of the mat and its bosses may vary and the bosses may be in form of fins which slip over each of the spigots 77.

Figures 30 to 39 show different shaped spigots in
25 accordance with different embodiments of the present invention. Thus Figure 30 shows spigots which have a generally frusto conical shape, Figure 31 shows spigots 81 which have a lower bulbous region which extends into a thin curved finger like projection with a small nodule on its
30 upper end.

Figure 32 shows spigots with convex shaped fins 82.

Figure 33 shows spigots which are located on a concave base section 84 and are thin elements which
35 converge towards each other at their upper ends to grip an object 85 therebetween.

Figure 34 shows spigots 86 which have a flexible

- 22 -

ridge 87 located therebetween so as to allow an object to be inserted between a spigot and the ridge 87 at its lower end but at the same time allow the object to be gripped by bulbous head portions 88 of each spigot at an upper end of the object.

Figure 35 shows spigots 89 with a webbing 90 therebetween which is adapted to be extremely pliable in order to receive an end of an object therein.

Figure 36 shows wedge like fins 91 located at the lower end of each spigot 92 whereas Figure 37 shows a cross configuration of straight sided fins 93.

The shape of peripheral fins of the spigots may vary dependent upon the type of article which is to be gripped/stored by the storage device or the amount of gripping force which is to be applied to the article. In addition the peripheral surface of each fin may be of increased width in order to increase the surface area of contact with an object to be gripped.

Other variations may be made to the storage devices described above without departing from the overall inventive concept.

CLAIMS

1. A device for retaining articles including a support surface having a holding means and at least one holding zone defined by a space between adjacent holding means and wherein the device is able to be placed in a plurality of orientations in which the adjacent holding means are adapted to hold at least one article in the holding zone.
2. The device as claimed in claim 1 wherein the holding means comprises holding portions which extend from the support surface.
3. The device as claimed in claim 1 wherein each holding means comprises at least one holding member.
4. The device as claimed in claim 2 or 3 wherein the holding means is adapted to immobilise an article irrespective of the devices orientation.
5. The device as claimed in claim 4 wherein the holding means comprises a plurality of holding members aligned in a plurality of rows.
6. The device as claimed in claim 5 wherein the holding zone is defined by a space occurring between adjacent rows of holding members.
7. The device as claimed in claim 6 wherein the holding members include holding portions, whereby an article is able to be held between holding portions of adjacent holding members.
8. The device as claimed in claim 7 wherein each holding member has a plurality of holding portions.
9. The device as claimed in claim 8 wherein each holding portion is resiliently deformable.
10. The device as claimed in claim 9 wherein each holding portion comprises a peripheral side wall portion of one holding member.
11. The device as claimed in claim 10 wherein each holding member comprises a projection upstanding from the support surface.
12. The device as claimed in claim 11 wherein

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the support surface comprises a generally planar base.

13. The device as claimed in claim 11 wherein a plurality of holding portions comprise at least one fin extending from a side wall thereof.

5 14. The device as claimed in claim 13 wherein each fin comprises a flexible web.

15. The device as claimed in claim 14 wherein each fin increases in lateral width from a top end to a bottom end of its holding member.

10 16. The device as claimed in claim 15 wherein at least some of adjacent holding members have a hole located in the holding zone located therebetween.

17. The device as claimed in claim 16 wherein the holding zone comprises a plurality of holes aligned in
15 rows between adjacent rows of holding members.

18. The device as claimed in claim 17 wherein the support surface comprises a lattice portion comprising rows and columns of holes and holding members.

20 19. The device as claimed in claim 18 wherein rows and columns of holding members are supported by rows and columns of base portions of the support surface.

20. The device as claimed in claim 19 wherein each holding member is located over one of the rows or columns of the base portions.

25 21. The device as claimed in claim 20 wherein each holding member is located at a junction between rows and columns of the base portions.

22. The device as claimed in claim 21 wherein holding members are arranged at respective junctions in
30 rows and columns.

23. The device as claimed in claim 22 wherein holding portions of the holding members extend laterally across part of an adjacent hole.

35 24. The device as claimed in claim 23 wherein each holding member includes a plurality of fins.

25. The device as claimed in claim 10 wherein the fins comprise gripping means for gripping an article

- 25 -

between adjacent fins.

26. The device as claimed in claim 25 wherein each fin is spaced apart from the support surface.

27. The device as claimed in claim 1 or 26
5 wherein the support surface includes an adhesive backing whereby the support surface is able to be adhesively connected to another surface.

28. The device as claimed in claim 1 wherein the
10 holding means comprises a base sleeve having a plurality of collar portions each located around a respective aperture and having holding portions for holding an article between adjacent holding portions.

29. The device as claimed in claim 1 wherein
15 each of the holding members comprises a plurality of webs facing webs of another holding member on an opposite side of the holding zone.

30. The device as claimed in claim 1, wherein
20 the support surface includes a coupling portion for coupling the device with a structure surface, whereby the device is immobilised with respect to the structure surface.

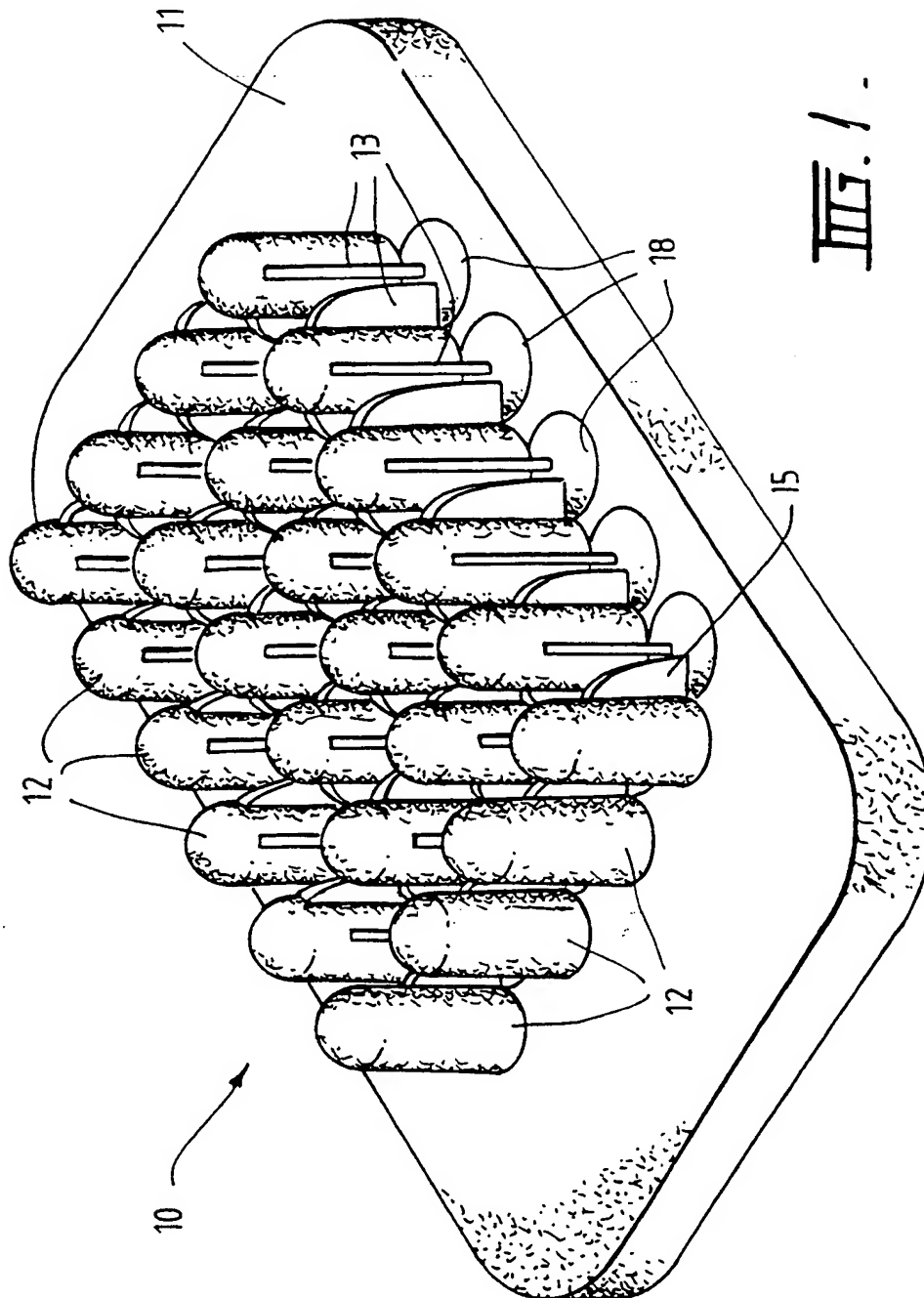
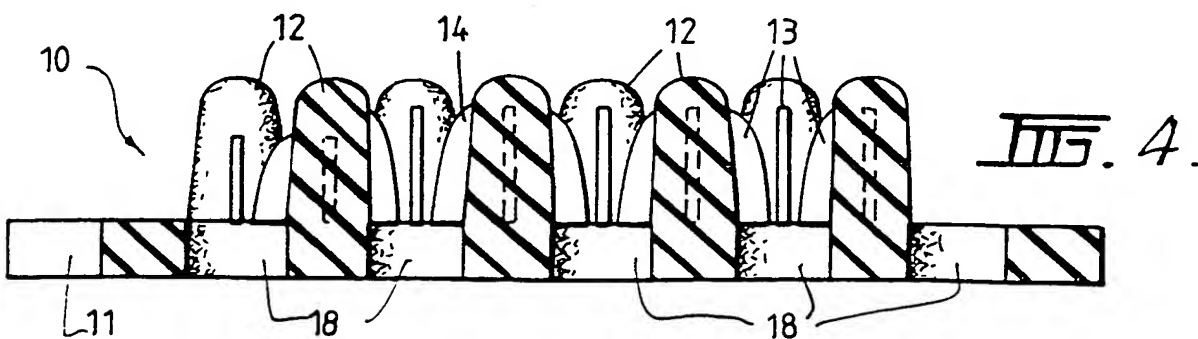
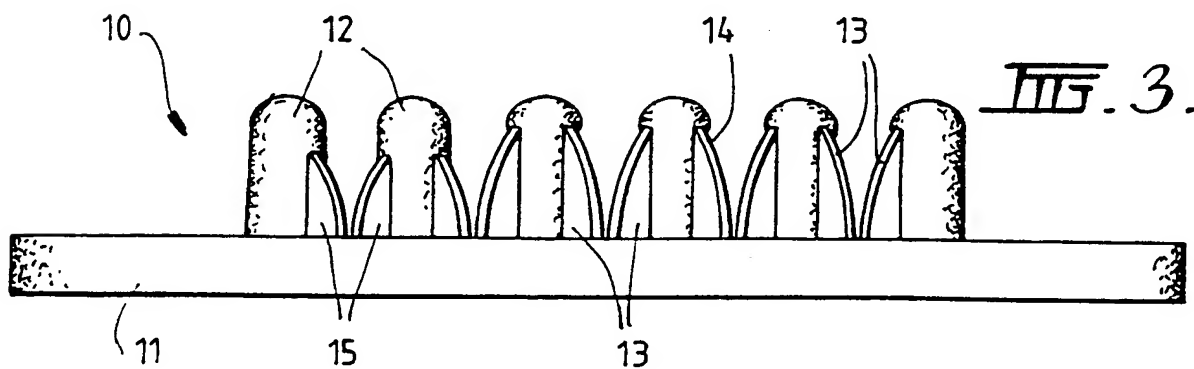
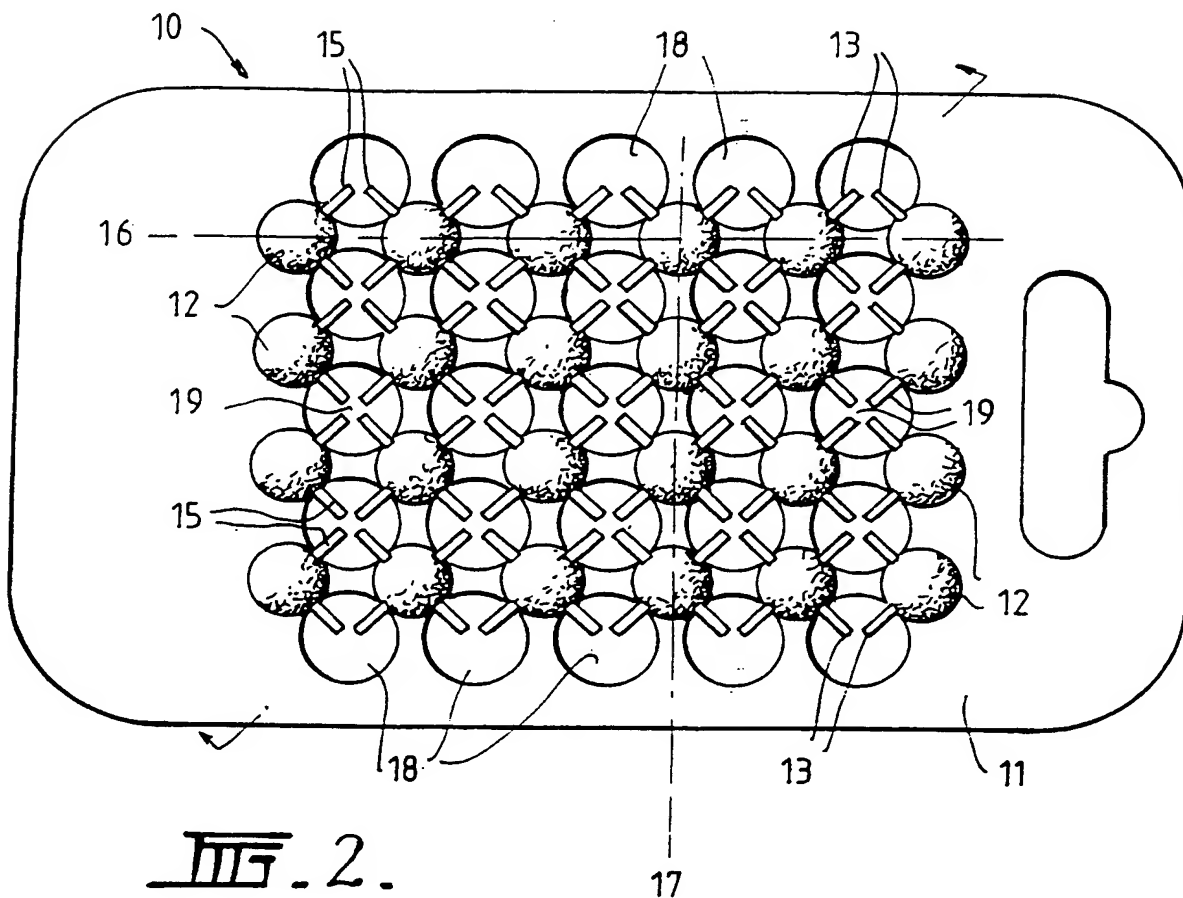
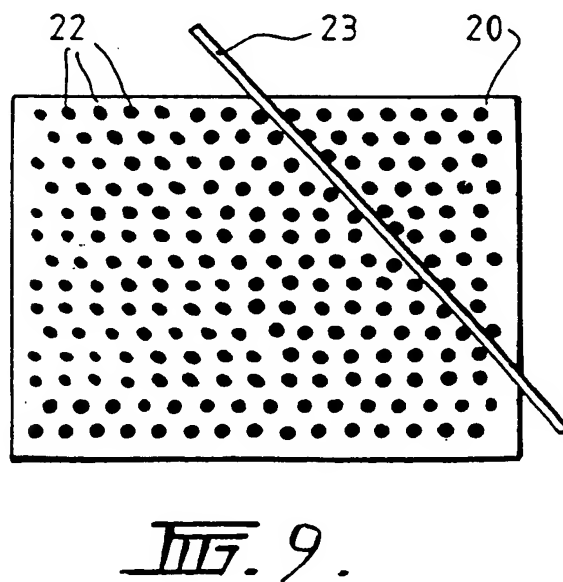
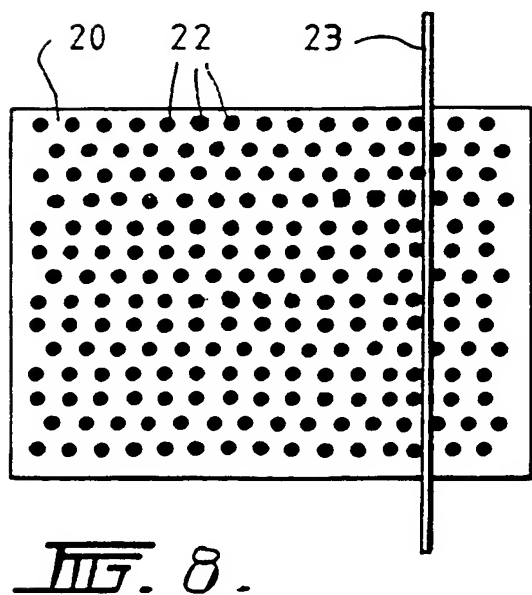
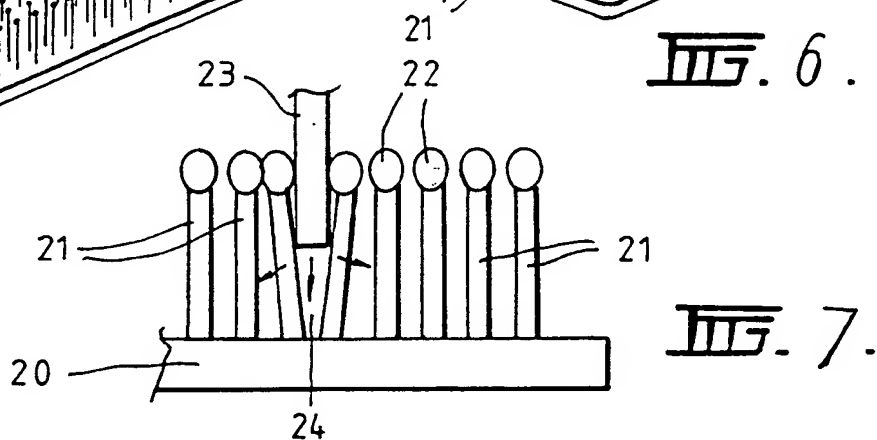
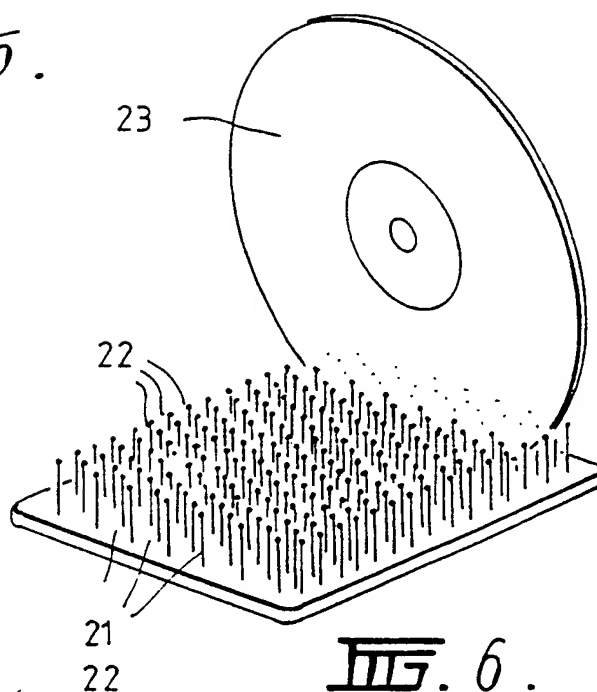
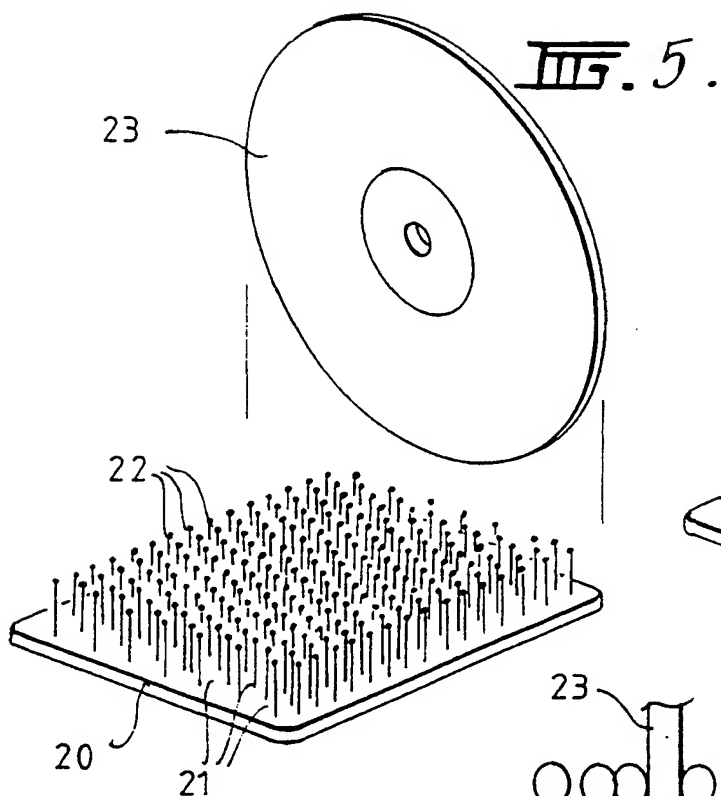
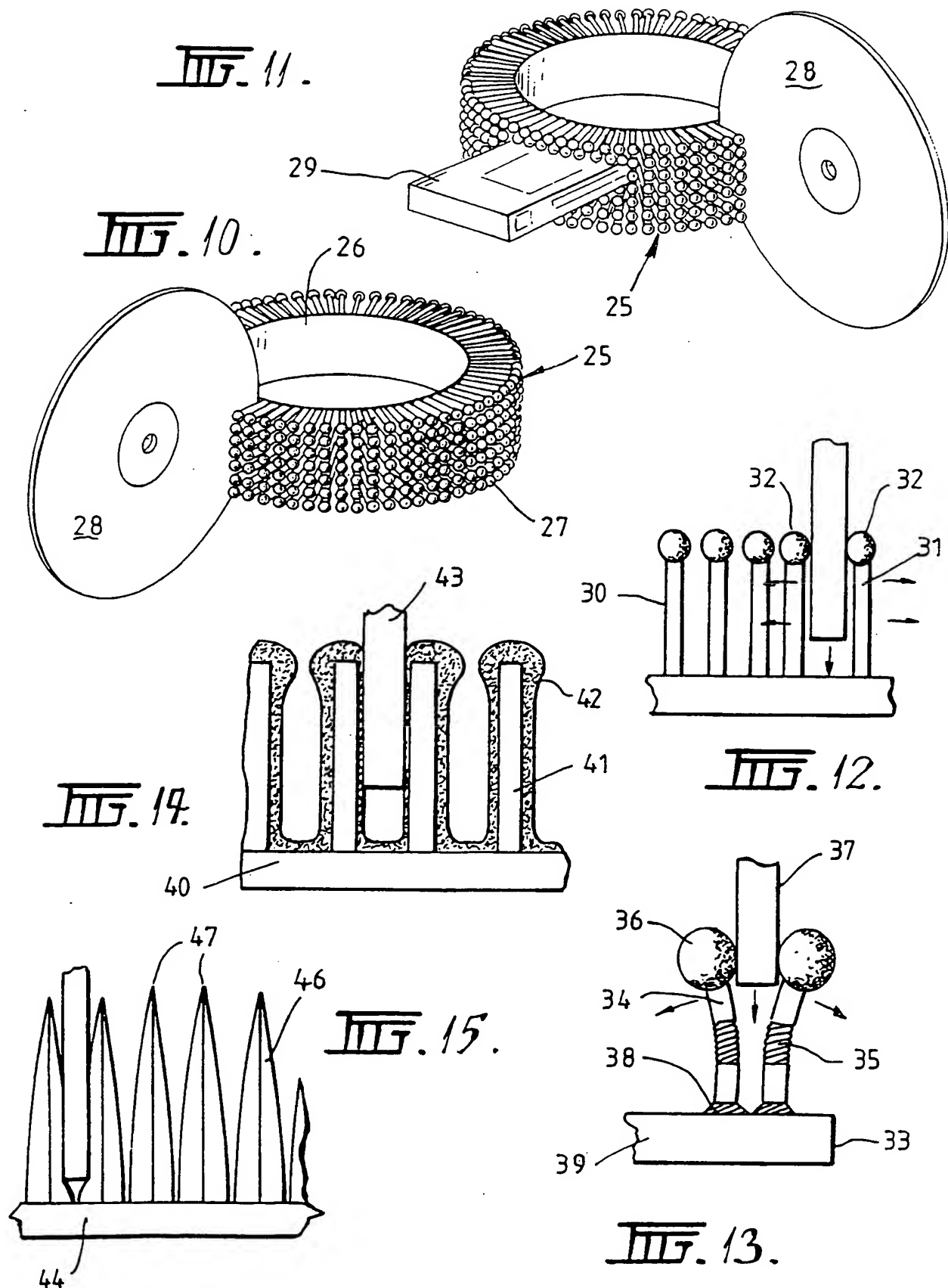


Fig. 1







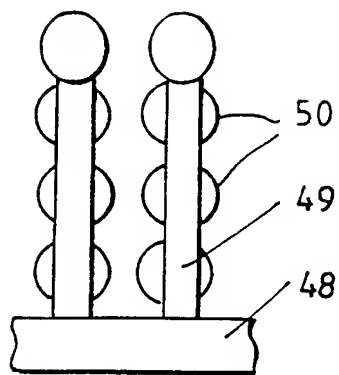


FIG. 16.

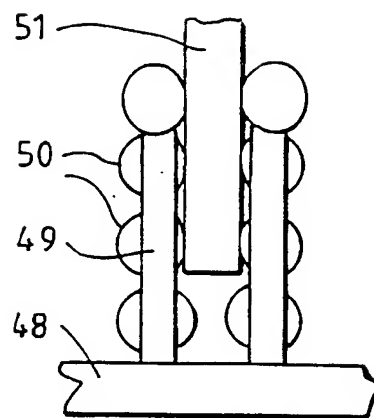


FIG. 17.

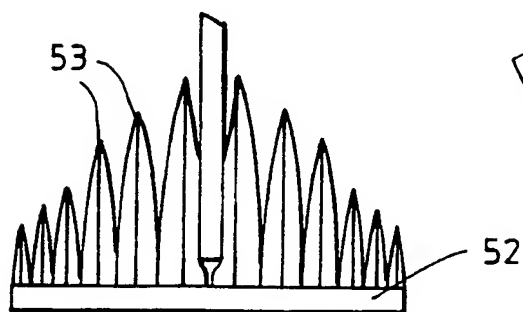


FIG. 18a

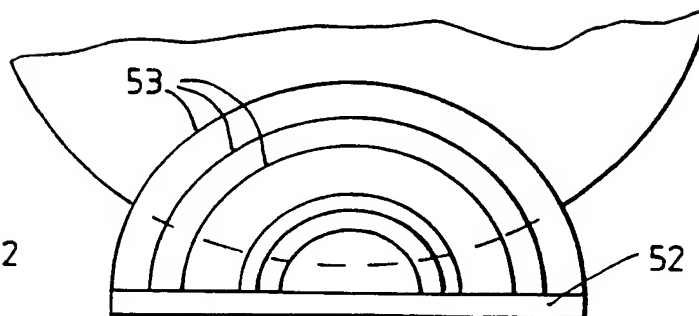


FIG. 18b

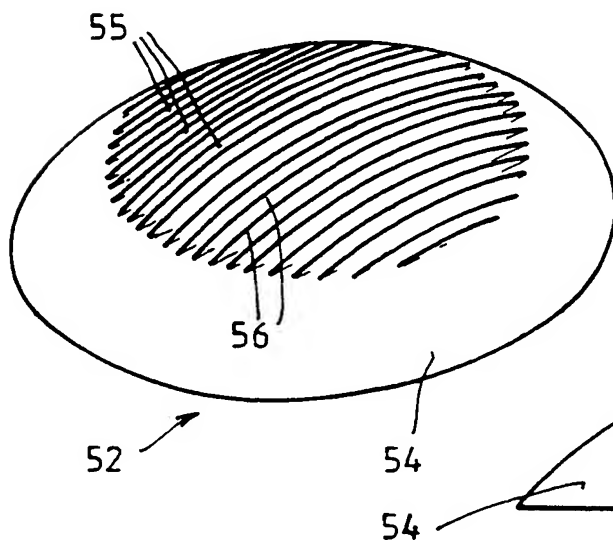


FIG. 18c

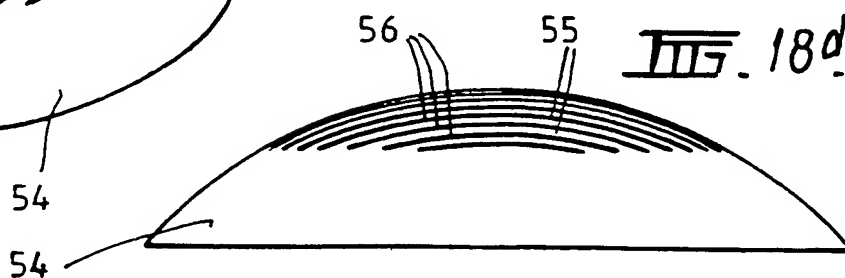


FIG. 18d

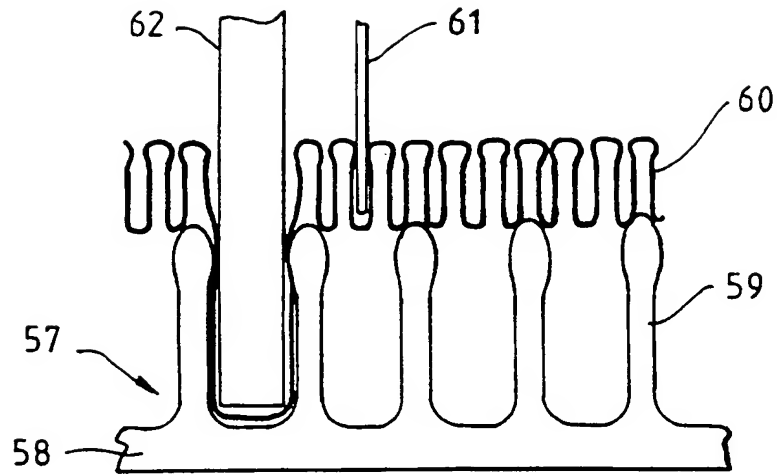


FIG. 19.

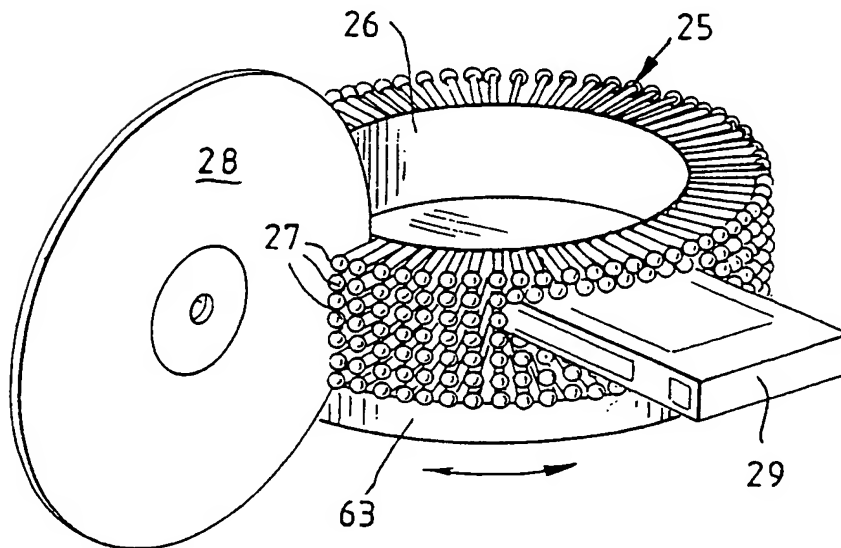
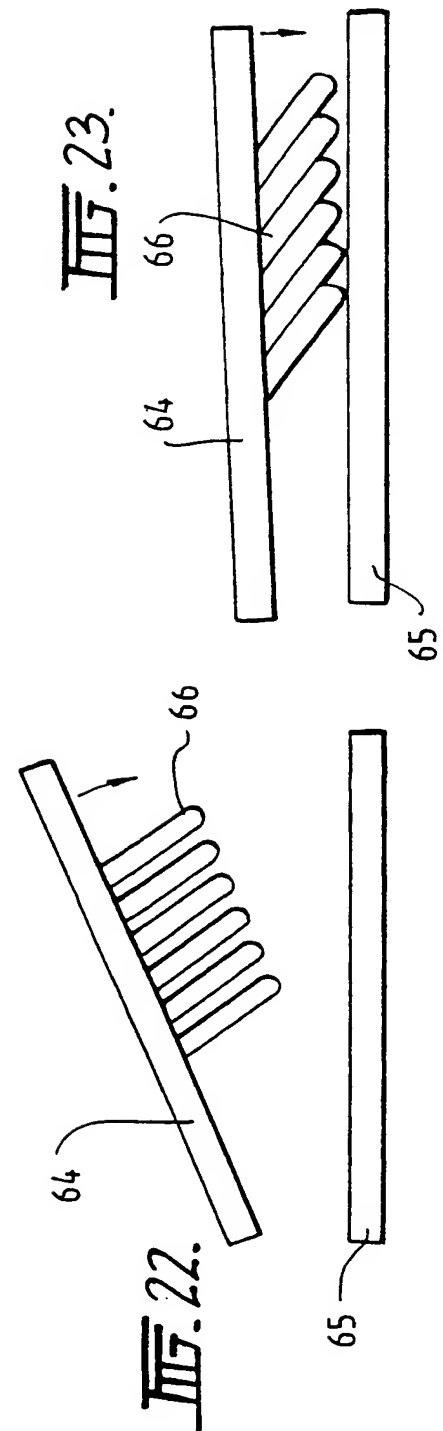
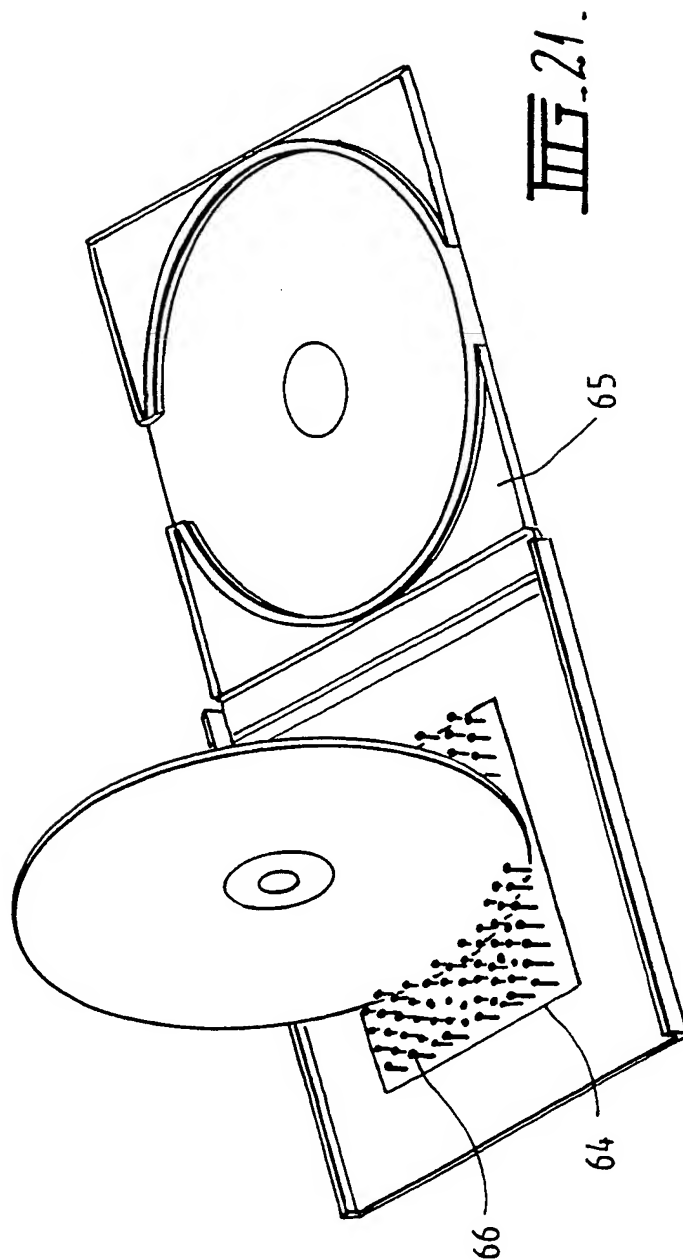


FIG. 20.



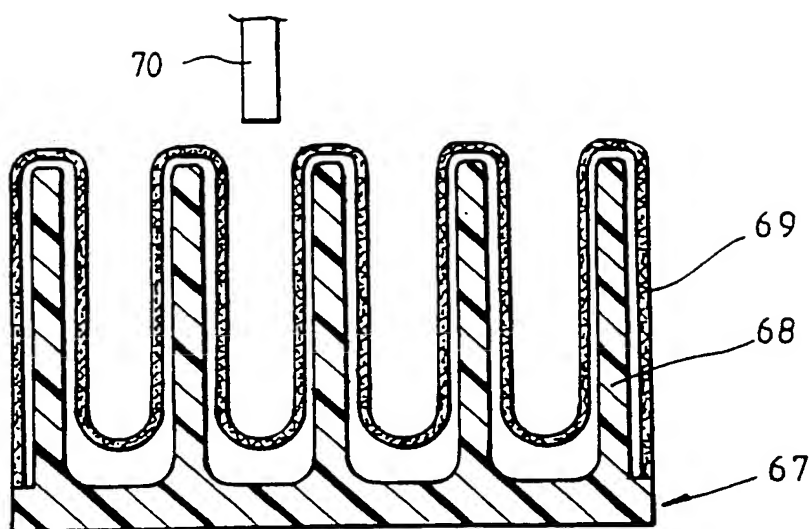


FIG. 24.

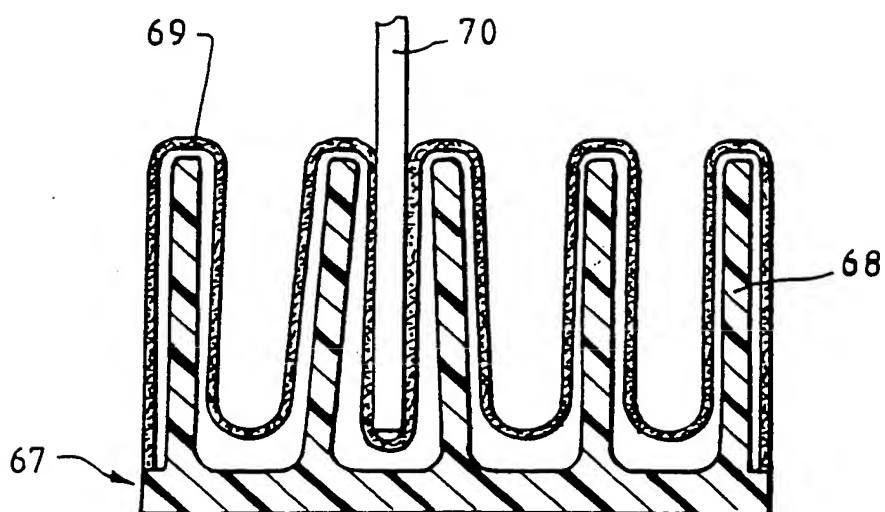
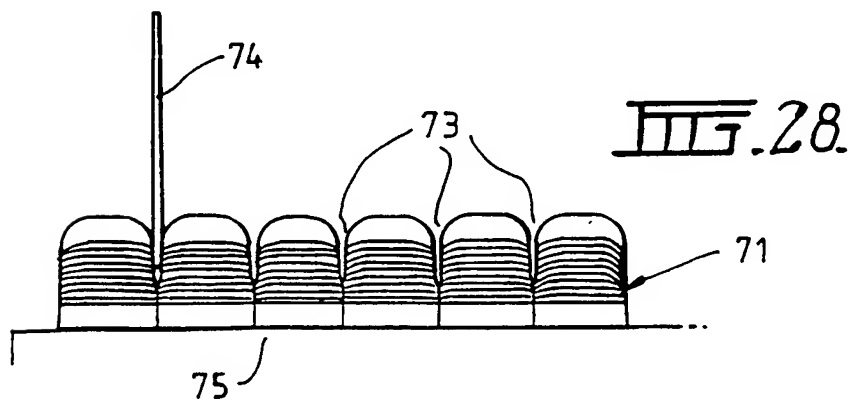
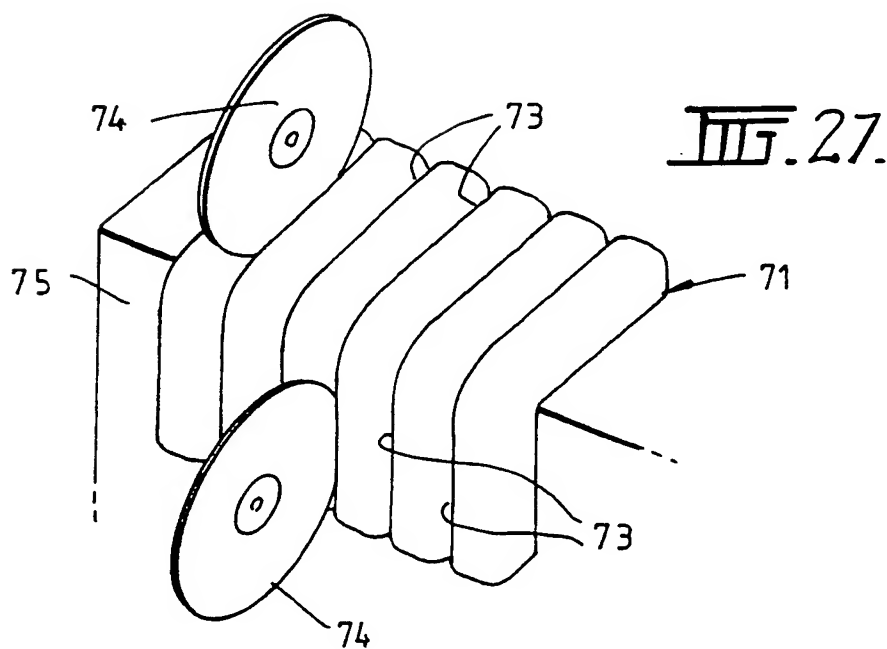
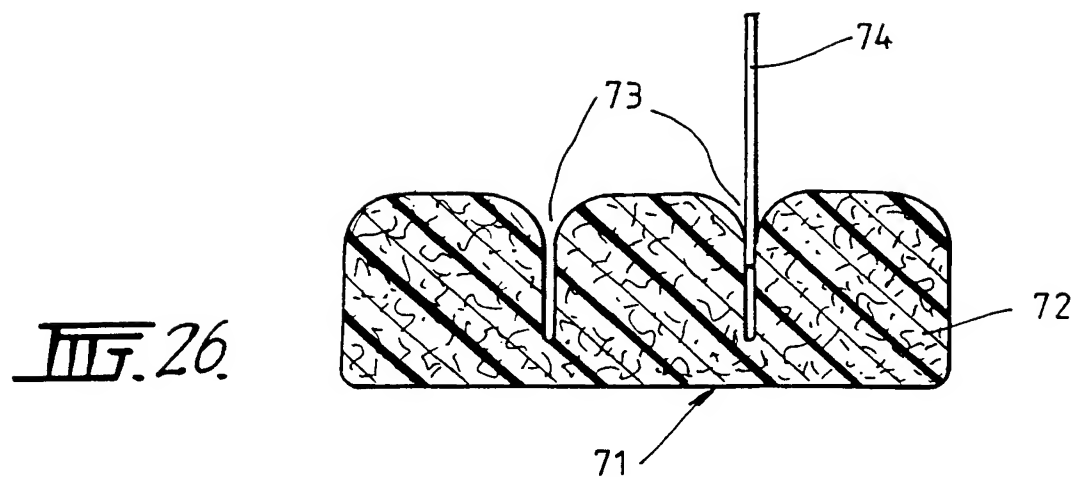
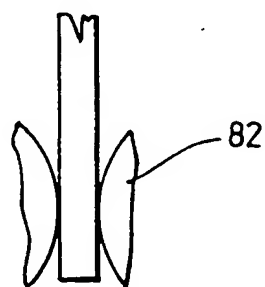
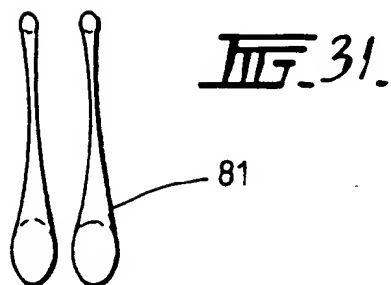
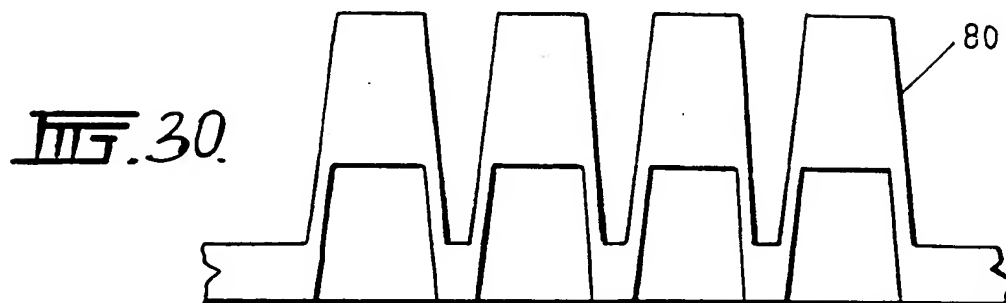
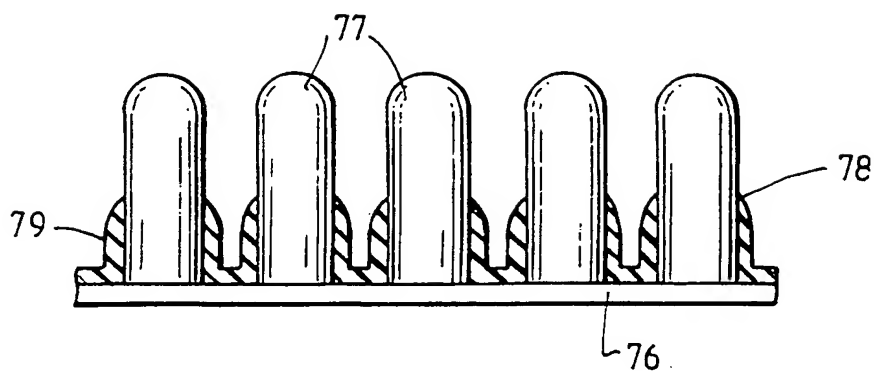


FIG. 25.





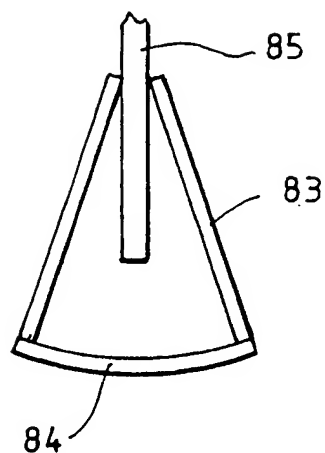


FIG. 33.

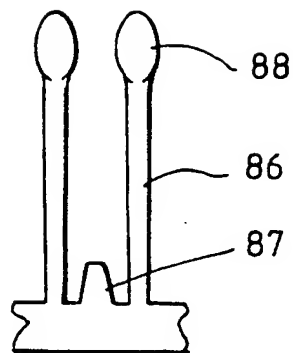


FIG. 34.

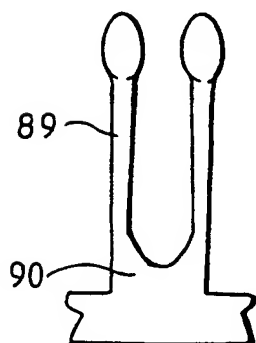


FIG. 35.

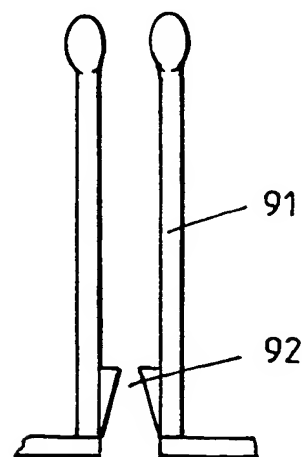


FIG. 36.

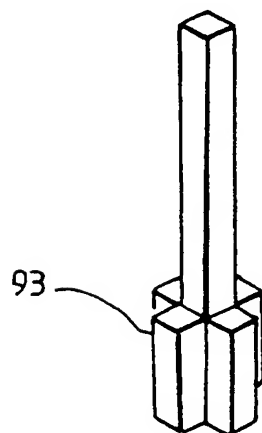


FIG. 37.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00186

A. CLASSIFICATION OF SUBJECT MATTERInt. Cl. ⁷: G11B 33/04, 23/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: G11B 33/04, 23/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	DE 19807863 A (WELLA AG) 26 August 1999	1 - 30
X	Derwent Abstract Accession No 96-146698/15, Class Q34, JP 08-034482 (SONY CORP) 6 February 1996	1 - 30
X	GB 2306443 A (FORD MOTOR COMPANY LIMITED) 7 May 1997	1 - 30
X	US 5632374 A (FITZSIMMONS et al) 27 May 1997	1 - 30

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Date of the actual completion of the international search

7 April 2000

Date of mailing of the international search report

18 APR 2000

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00186

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5740907 A (McCLOY) 21 April 1998	1 - 30
X	WO 85/00274 A (MATILAINEN et al) 31 January 1985	1 - 30

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00186

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Patent Document Cited in Search Report				Patent Family Member			
JP	08-034482	EP	817519				
WO	8500274	DE	3490321	DK	975/85	FI	832452
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		SE	8501047				
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